

# DESIGN FOR RECOVERY

## REUSE, RECYCLING OR COMPOSTING

### Introduction

This Quickstart is intended to be used in conjunction with APCO's Sustainable Packaging Guidelines (SPGs) by providing a decision tree, designed to help guide decisions on the most appropriate recovery pathway for a particular packaging category. This Quickstart should be considered first, followed by a series of Quickstarts which provide a quick high-level guide to design strategies that improve the recyclability of different materials; these can be found at the end of this document.

**NOTE:** *The Quickstart is intended to be general guidance only, and the information provided has been developed based on current knowledge at the time of publication.*

It is important to keep in mind the waste hierarchy (Figure 1) to achieve highest potential environmental value. Reduction generally achieves the highest value, followed by reuse, material recycling, organics recycling and energy recovery. As a general rule, material recycling that keeps materials at their highest value for as long as possible is preferable to organics recycling.

Compostable materials should be avoided if there is already a well-established recycling system for that type of packaging. Exceptions to this rule may include:

- Packaging heavily contaminated with food or another organic nutrient, and which cannot be easily removed by the consumer and is therefore unsuitable for material recycling.
- Packaging that could facilitate the recovery of waste organics, for example food waste bags for food and garden organics (FOGO) collections, or packaging in venues with a high proportion of food waste where all of the compostable material can be collected and processed together.

If a claim is to be made (e.g. on the label) that packaging is either 'recyclable' or 'compostable' it must meet two essential requirements:

1. It must be designed for recovery (material recycling or organics recycling); and
2. There must be a collection system that can be accessed by at least 80% of the population (or available in the facility where the packaging will be consumed, e.g. a collected for composting from a café or food court).

Regulatory requirements may also apply.

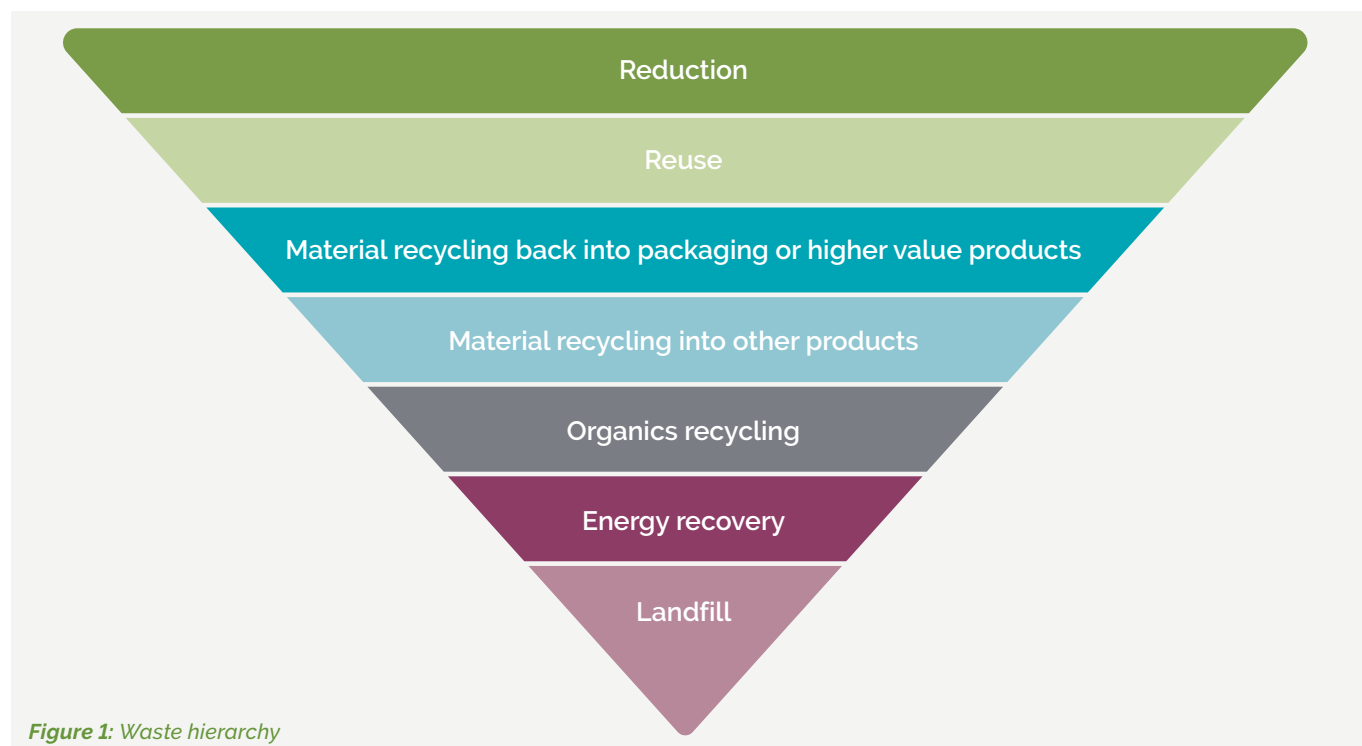


Figure 1: Waste hierarchy

Questions to guide decision making

	QUESTION	
Reduce	1. Are there any opportunities to avoid or reduce the amount of packaging?	If YES, redesign the packaging system to improve material efficiency and to ensure that it can be recycled at the end of its life (see below)
	2. Would most consumers/customers return the packaging for another use, or could you establish a collection system?	
Reuse	3. Could you design the packaging to enable multiple use cycles (e.g. so that its sufficiently durable, safe, hygienic etc)?	If YES, consider design for reuse. You will need to establish a return system and also design for recycling at end of life (see below).
	4. How many average use cycles could you achieve, and are these sufficient to achieve a net environmental benefit?	
Recycling	5. Will the product be consumed at home or in a business (e.g. café)?	If YES, material recycling is the optimal recovery pathway. Design for compatibility with recycling system. Refer to the Sustainable Packaging Principles (from the SPGs), PREP and other Quickstart guides for more information.
	6. Is the current packaging recyclable through the kerbside recycling system (refer to the Packaging Recyclability Evaluation Portal (PREP) or another accessible recycling system such as a container deposit scheme or other public drop off)?	
	7. If the current packaging is NOT yet accepted in an existing recycling system (e.g. council or commercial collection), could you work with stakeholders to establish a collection and recycling system accessible to >80% of the target population?	
	8. Is it possible for the consumer or user to easily remove any organic residue (e.g. loose food residue)?	
Composting / organics recycling	9. Is the packaging nutrient contaminated, i.e. it is likely to be contaminated with organic residue (e.g. food, grease)? (see definition below)	If YES, organics recycling is the optimal recovery pathway. Design for compatibility with composting or other organics recycling systems. Refer to the Sustainable Packaging Principles for more information.
	10. Is it difficult for the consumer to remove any organic residue from the packaging?	
	11. Could the package be manufactured from a compostable material that meets functional requirements (product protection, shelf life etc)?	
	12. Is the package itself compostable, i.e. certified to a compostability standard?	
	13. Is there a collection system for the packaging that can be accessed by at least 80% of the population (or available in the facility where the packaging will be consumed, e.g. collected for composting from a café or food court)?	
	14. If the package is NOT yet accepted in an existing organics recycling system, could you work with stakeholders to establish a collection and composting system accessible to >80% of the target population?	

Definitions

TERM	DEFINITION
Compostable packaging <sup>1</sup>	<p>A packaging or packaging component (1) is compostable if it is certified to AS4736, AS5810 or a similar compostability standard, and if its successful post-consumer (2) collection, (sorting), and composting is proven to work in practice and at scale (3).</p> <p><b>Notes</b></p> <ol style="list-style-type: none"> <li>1. ISO 18601:2013: A packaging component is a part of packaging that can be separated by hand or by using simple physical means (e.g. a cap, a lid and (non in-mould) labels).</li> <li>2. ISO 14021 clarifies post-consumer material as material generated by households or by commercial, industrial and institutional facilities in their role as end users of the product which can no longer be used for its intended purpose. This includes returns of material from the distribution chain.</li> <li>3. 'At scale' implies that there are significant and relevant geographical areas, as measured by population size, where the packaging is actually composted in practice.</li> </ol>
Highest potential environmental value	<p>Recovery is occurring at the optimal level of the waste hierarchy, based on available recovery systems and sustainability impacts of alternative recovery options (e.g. composting vs. recycling, or recycling vs. energy recovery). Reuse is encouraged prior to recovery when there is evidence that it extends the life of the packaging and achieves positive sustainability outcomes.</p>
Loose food means	<p>Solid materials that do not stick to the packaging, as well as liquids that drain freely off the packaging, with minimal residue remaining. For example, pizza crusts, pastry crumbs etc.</p>
Material recycling	<p>Is reprocessing, by means of a manufacturing process, of a used packaging material into a product, a component incorporated into a product, or a secondary (recycled) raw material; excluding energy recovery and the use of the product as a fuel.</p>
Nutrient contaminated packaging <sup>2</sup>	<p>Packaging that is contaminated by nutrients/organics and is often difficult to sort and clean for high quality recycling. This includes applications that are prone to be mixed with organic contents during or after use. This could either be by design, such as in coffee capsules, or because the application leads to a high food waste-to-packaging ratio after use, such as food packaging for events, fast food restaurants and canteens.</p>
Organics recycling	<p>The treatment of separately collected organics waste by anaerobic digestion, composting or vermiculture.</p>
Recoverability	<p>Recoverability of packaging refers to the availability of systems for reuse, recycling, composting or energy recovery.</p>
Reusable packaging <sup>3</sup>	<p>A characteristic of packaging that has been conceived and designed to accomplish within its life cycle a certain number of trips or uses for the same purpose for which it was conceived.</p>

<sup>1</sup> Ellen Macarthur Foundation (2019), *The new plastics economy: global commitment reporting guidelines*, 16th July 2019, p. 49.

<sup>2</sup> Ellen Macarthur Foundation (2017), *The new plastics economy: catalysing action*, p. 29

<sup>3</sup> Ellen Macarthur Foundation (2019), *The new plastics economy: global commitment reporting guidelines*, 16th July 2019, p. 36-37.

### More information

Please follow the links below to view the other Quickstarts in this series:

- Guide to labelling for recovery
- Guide to recycling polyethylene terephthalate (PET)
- Guide to recycling glass

**Disclaimer:** This document has been developed by the Australian Packaging Covenant Organisation (APCO) with consultation from packaging manufacturers and experts in the waste and recycling industry. The document is intended to be general guidance only and the information contained within has been developed based on current knowledge at the time of publication.

Some information may not be relevant to all packaging types. For specific guidance on individual packaging items and to classify recyclability through kerbside recycling in Australia and New Zealand, please refer to the Packaging Recyclability Evaluation Portal (PREP). PREP is a living and dynamic platform that can be edited or expanded in consultation with a Technical Advisory Committee, as market and infrastructure adapt.

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